

AVIATION

The Oldest American Aeronautical Magazine

JANUARY 18, 1926

Issued Weekly

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The Old and the New.

VOLUME
XX

SPECIAL FEATURES

NUMBER
3

MULTI-ENGINE PLANES AND FORCED LANDINGS
WHAT READERS THINK ABOUT AIR LEGISLATION
AIRWAYS MARKED IN MIDDLE WESTERN STATES

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Cleveland— Air Center

THE establishment of Cleveland's new and splendid air port crystallizes a development which has been under way four years—it assures the position of Cleveland for all time as one of the world's great air centers. Always strategically favored for land and water communication, Cleveland is now marked for an even more outstanding position in the air world.

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The purchaser of a Martin plane is safeguarded by the concentration at one point of insured engineering experience, expert production personnel and completely rounded production facilities.

The Star in the Sky

Whether on the wing of a mail plane, a bomber, a patrol, reconnaissance or plane or commercial carrier, you can rely on all the Glenn L. Martin Company holds for the same approach to the experimental observation—engineering, inspection, workmanship and construction—inspired during back in the infancy of the air, always with the same approach—DEPENDABILITY.



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JANUARY 16, 1926

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VOL. XX, NO. 3

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SCINTILLA

DEPENDABLE IGNITION

Major Reed Chambers, president of the Florida Airways Corp., recently made a 2,000 mile flight in his Curtiss "Lark" plane with Wright J4 200 h.p. SCINTILLA equipped engine. He reports that "This motor had practically

no attention on the trip and for over 1000 miles ordinary automobile gas was used. We used two quarts of oil from New York City to Miami Fla., and made an average of 100 miles to 15 gallons of gas."



Rear Admiral Wm. A. Moffat, Chief of the Bureau of Aeronautics, Navy Department, says in his annual report

"No Engine Is Better Than Its Accessories"

APPRECIATION OF THIS KNOW IS SHOWN BY THE CHOICE OF SCINTILLA BY LEADING AMERICAN AIRCRAFT ENGINE MANUFACTURERS

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SPEED WITH SAFETY



THE LARK IS NOW IN SERVICE

See what Major Reed Chambers, president of the Florida Airways Corporation, writes us:

"It is very interesting to know that I have just completed a two thousand mile trip from Glades City, Long Island, to Miami, Florida, across the state of Florida to Ft. Meyer, and return to Detroit, in the Curtiss Lark which was delivered to us on December 5th.

"I am very enthusiastic over the performance of this plane and I believe it to be the most modern plane of its type in existence. I wish to compliment you particularly on the strength of the landing gear and the ability of the plane to get in and out of small fields. Its stability is also remarkable.

"A word also about the motor. The Wright J-4 200 HP gives the plane a cruising speed of better than 105 m.p.h. This motor had practically no attention on the trip and for over one thousand miles of the trip ordinary automobile gas was used. We used two quarts of oil from New York City to Miami, Florida, and an average of one hundred miles to thirteen gallons of gas.

"I believe this plane has tremendous possibilities from either a training or commercial standpoint."

This is but one of the Lark series. In addition to the J-4 200 HP air cooled motor installation, the Lark is built with either the 180 HP Hino motor or the Curtiss C-6 160 HP motor, giving a range of performance suitable for varying types of commercial flying and for military training purposes. For water flying the J-4 machine is furnished with pontoon equipment.

The Lark has been developed with particular attention to inexpensive production and maintenance. Our prices will interest you.

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Curtiss Aeroplane & Motor Company, Inc.

GARDEN CITY, N. Y.

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Air Transportation Experience

IT IS becoming more and more recognized by reason of experience that European air transportation activities are by no means so significant as it has been the tendency to generally believe, and this because of the total inability of any airline operating in that quarter to have a profitable balance sheet, in spite of generous government financial assistance in the form of subsidies.

On the other hand, it would be very unfortunate if the financial failures should result in a complete overlooking of the operating experiences of airlines abroad. There can be no doubt that, whether a financial success or not, European air transport operations, after six years of existence, have taught many lessons, which are bound to be of extreme value. A striking example of this was to be found in the recent presidential address before the Royal Aeronautical Society by General Brindley, Director of Civil Aviation in the British Air Ministry. General Brindley's remarks on the lessons which have been learned during six years' experience in air transportation, were so full of extremely significant points that his paper is destined long to remain an excellent standard of the requirements of air transport, and this, in spite of his open admission that British air transport has been a financial and commercial failure.

European airlines and the subsidies, debts and expenses resulting from them, should, therefore, well be closely followed by those interested in making the air transportation side of commercial aviation a success in this country. Considerable information and experience have been accumulated on such pertinent subjects as air port operation, passenger handling, ground organization and publicity and advertising, which latter have been developed so extensively in Europe, and the state of experience will prove invaluable to those who are planning air routes in every part of the world.

If the two-engine plane is able to fly on either engine individually, it is shown that a redundancy of the order of one failure in 4,900 trips or 999,900 miles may be expected, while with the three-engine plane this is 25 or as many two times, this figure is reduced to one failure in 4,940 trips or 49,400 miles or but a little more than one third the redundancy of the two-engine plane.

If, however, economy and costs of operation are taken into consideration, it is immediately apparent that this is not necessarily the case. The two-engine plane which is capable of maintaining flight with one engine stopped, will, to put it plainly, be carrying around in the air just twice the power necessary for flight. The three-engine type, on the other hand, where the engines are capable of maintaining in the air on any two engines, is only penalized, in the interests of redundancy, to the extent of one third the maximum power required for flight, with a consequent economical advantage over the two-engine airplane. This point must be borne in mind in considering the respective advantages of the two types in commercial aviation.

Investigating further, it is important to note that the three-engine type represents, in fact, the most advantageous compromise at the factors of redundancy and economy. The four-engine plane, which can fly on any two engines, and be considered out of the question from the economic standpoint, although the almost inconceivable redundancy of one failure in over twenty-four million trips is projected. It would seem, therefore, that the answer for the time being, at least, of the redundancy problem in air transport, lies in the three engine airplane. The single engine plane, in actual service and other terms at commercial flying, will continue, however, to be used extensively.

The Airplane Ambulance in Service

THE AIRPLANE ambulance has been put into extensive use under extreme service conditions in the recently completed operations of the French against the Huns of Mexico. It played a most important part in the campaign, especially as the type of country was such as to render transportation of wounded by ground methods extremely haphazard. These operations should be an incentive for the further development of the airplane ambulance. An army or air force of the future will be incompletely equipped if they are not adequately provided with aerial ambulances.

According to the official reports, an average of 100 cases were carried back to hospital bases by air during the Franco-Mexican war. Considering the magnitude of the operation, this number is large and may be taken as a reasonable estimate of the probable value of the airplane ambulance as an active service.

Multi-Engine Airplanes and Forced Landings

Multiple Engines Insure Greater Reliability, One Forced Landing in 343,000 Flights or One in 1,400 Years, a Possibility.

By HARRY C. SMITH

Superintendent, Development Division, Air Mail Service

RECORDS of the Air Mail Service for a period of six months show that there is no mechanical forced landing for every 15,000 miles flown with mail. The average mail trip, or the distance between service stations, is approximately 180 miles, which gives one mechanical forced landing for every 77 trips. In the following discussion, we will be on the side of safety if we assume for a base that, with a single-engine airplane, there is one mechanical forced landing for every 70 trips.

The Chance of Mechanical Failure

It is also assumed that, in any multi-engine airplane, the installation of the engines is such that each is entirely independent of all others in the airplane. That is, it is assumed that, if a very large number of trips are flown, there will be one engine failure for every 70 trips, and that any one engine failing will not affect the operation of any other on the airplane. Taking this as a basis, the chance of a mechanical forced landing with a single-engine airplane, may be said to be one in 70 trips.

With a two-engine airplane, there are two cases. First is the case when either one of the two power plants will maintain sustained flight after the other has failed. In this case the chance of a forced landing is 1/70 or one in 4,900 trips. The second case is when both engines are required for flight and the failure of either will cause a forced landing. In this case the chance is $(1/70)^2 = 1/4,900$, or one in 70 trips.

With a three-engine airplane there are three cases. First, is when the airplane will maintain flight with only one engine operating (that is, any one of the three). In this case the chance of a forced landing is $1/70^2$, or one in 343,000 trips. The second case is when the airplane will fly on any two engines but will not fly on one alone. In this case the chance is $1/70$, or one in 14,000 trips. Lastly, the third case is when all three engines are required for flight and the chance

of a forced landing is $(1/70)^3 = (1/343) = 1/70^3$, or one in 343,000 trips.

Following, with a four-engine airplane, there are four cases according to which the engine will fly on one, two, or three engines, or require all four for level flight. The chance of a forced landing in all the above cases are given in the following table:

Number of engines in airplane	Maximum number of engines necessary for flight	Probability of loss of an engine in forced landing
1	1	$1/70$
2	1	$1/4,900$
2	2	$1/4,900$
3	1	$1/4,900$
3	2	$1/70$
3	3	$1/343,000$
4	1	$1/4,900$
4	2	$1/70$
4	3	$1/70$
4	4	$1/343,000$

Forced Landings in Terms of Years

It will be noted from the table that, with any multi-engine airplane, requiring all engines for flight, the chance for a forced landing is increased in proportion to the number of engines. In every case, when the airplane can maintain flight after one or more engines have failed, the chance of a forced landing is very much decreased. An Air Mail pilot now flies about 100 trips in a year. If the best release of the above table is divided by 360, the result obtained will be the probable number of years that a pilot should fly for every mechanical forced landing he has. In the case of the one and three-engine airplanes that will fly on only one engine, the number of years to a forced landing is 20 years and 1,400 years, respectively. Such airplanes as these, then, should practically eliminate mechanical forced landings.

The Commercial Use of Wright Whirlwind 200 h.p. Air Cooled Engines

ONE of the best proofs of the advantages of Wright Whirlwind 200 hp air cooled engines for commercial aviation, is the rapid increase in the quantity thereof sold. In addition to the hundreds of these Wright Whirlwind engines, which have been purchased by the Navy, the Wright Company has sold 124 Whirlwinds to customers other than the United States Government. Many of these were represented as engines only, which is an indication that longer range orders may be expected to come in in the near future. Five of the orders were export orders, which indicate the satisfaction given by the Whirlwind engine on the aerial orders.

It is interesting to learn that in December last, seven orders were received from various commercial aviation interests, for Wright Whirlwind engines. These December orders total up to not less than 90 engines.

Rapid Increase in Private Orders

Of this total of 124 Whirlwinds going to other buyers, than the U.S. Government, it is interesting to note the increase in the rate of sales of this size of engine. Previous to 1924, only one was sold to an outside customer. In the latter months of 1924 orders were sold of the total of 124. Of the orders for 68 engines received in December, sixty of the deliveries will be made during the early months of the new year.

It is an old saying with those that the "Sun Never Sets On Wright Engines." The use to which these 124 Wright Whirlwind engines are put is a proof of this saying. Some of the Whirlwinds are for use on the Polar Route to be made by Captain Williams on the *Albatross Arctic Expedition*, while others are being used to trim and trim, and below the equator. The uses to which these commercial Wright Whirlwind engines are put are practically unlimited. They are used on commercial aviation, including passenger carrying, mail and express carrying, amphibious, forest surveying, forest fire patrol work, (logging, etc.), navigation, mail, aerial electric, magnetic communication, mining and private aviation use.

Commercial Possibilities Highlighted

The engineers of airplane designers to take advantage of the commercial possibilities of the Whirlwind is shown by the fact that 23 new models of strictly commercial planes have been made by representative builders, using the Wright Whirlwind engine as the power plant. The designers, by economy and high performance of these engines appeal to the designer as much as to the pilot. Furthermore, several types of planes that have hitherto used other types of power plants, have come into their own when powered with these modern Whirlwind 200 hp air cooled engines.

For instance, the large three engine, ten passenger aircraft built by the Fokker Company, and the Giant Mail Airplane Division of the Ford Motor Company, both utilized Whirlwind engines as power plants. Both of these three engine planes were previously designed for 400 hp. water cooled engines, but the light weight of 280 hp. Whirlwind added only a few hundred pounds to the total weight of the plane, although the power is increased from 400 hp. to 600 hp. A degree of dependability is added by having the three air-cooled engines, which is estimated to be overestimated in considering the safety of the plane. There is no question that for passenger carrying in large planes, the machines must be fitted with at least 3 engines and be able to fly properly with any one of the engines stopped. This has been accomplished by some big airlines, as exemplified by the splendid performance of the Fokker plane in the Ford Liberty Tour on its recent trip to Havana, and return and the thousands of miles of nonstop flying it has done. The tests of the Ford three engine plane are progressing satisfactorily.

The Whirlwind engine has increased the performance of the Curtiss Hawk over the performance obtained with the lower power engine, making this an absolutely world plane for general commercial purposes. It is one of the outstanding planes in the open cockpit class. The first one of these Hawks to be delivered to a commercial user was delivered to the Florida Airways Corp. immediately after taking delivery of the plane. Big Red, Commander, executive and president of the Florida Airways Corp., flew the Hawk to Florida



One of the first Wright Whirlwind 200 hp. air cooled engines to be used in the airplane class in the North Pacific in the Curtiss Hawk airplane.

and return, using commercial gasoline much of the way and having a splendid trip.

Commercial Design

The Huff Daland Company have built two commercial planes in 1925 with Whirlwinds. Credit should be given the Huff Daland organization for their conservative sharing of the 1925 trend in commercial aviation. This company, in establishing its fleet of fourteen new planes for sales had most designs, undoubtedly one of the latest commercial projects entered into in the world, without call of a Government subsidy. The Huff Daland "Buster" plane is powered with the Whirlwind engine. The Huff Daland Company have built another excellent photographic plane, for a private customer, with the Whirlwind. The Huff Daland photographic plane incorporates many of the features which make the water cooled photographic plane an excellent, but the faster climb and higher ceiling obtained with the Whirlwind add further to the value of this photographic plane.



2 Air Service Photo

The Douglas Transport C1 equipped with Liberty engines

The **Third Air Company** of Wichita, Kan., will loan for its constant compass plane powered with the 80 hp motor could easily have obtained three engines to the advantage of air control. The **Third Air Company** is equipped with **Whirlwind**. The **Whirlwind** is a two-seater aircraft for private airplane owners and commercial uses of planes, the **Third Air Company** is confident that the added performance the **Whirlwind** gives to the standard **Third Air plane** will find more users in the southern states.

The **Stamley Engineering Company** have built, for a private customer, an excellent photographic and commercial plane equipped with the **Whirlwind engine**. This plane combines high load carrying capacity with constant speed and is one of the best of the **Whirlwind** aircraft.

The Closed Cabin Plane

The **Wright Whirlwind** has made possible a new class of plane, the high performance, closed cockpit, cabin plane. The **Fokker Company** in their **Universal plane** powered with one **Wright Whirlwind**, is an excellent example of this cabin plane. The **Stamley Aircraft Engineers** of Detroit is building a cabin plane powered with a **Whirlwind**. The **Wright-Whirlwind** is one of the best in this class. The high performance of the **Wright-Whirlwind** also may advantage to commercial operators, especially in the high speed of 120 m.p.h. with a capacity for a thousand pounds of payload.

The popularity of the **Whirlwind** motor in Canada is evidenced by the **Royal Canadian Air Force** having built three different types of plane powered with **Whirlwind** engines. One of the three was the **Aero plane**, while the other two are new designs built by the **Canadian Vickers Company** of Montreal. One of these, the **Vickers "Vulture"**, is

a three place flying boat with a **Whirlwind engine**, designed for photographic work, forest fire patrol and general forestry work, its predominant characteristic being a fast climb and quick landing, making the plane suitable for small lakes, together with a long cruising range.

A Forest Fire Fighting Plane

The other **Canadian plane** is the **Vickers "Vulture"**, which is a two engine flying boat known as a fire suppression plane. These **"Vulture"** planes will be used to the forest fire area and when a fire is reported by one of the smaller planes, a fire suppression crew of six men, with **fireproofing outfit**, will be flown to the fire district in the big **"Vulture"**, and the fire fighting crew leads.

The 40 orders for **Whirlwind engine**, received in December, are being by means of increasing inquiries that undoubtedly will maintain sales of many additional engines during the following spring and summer. From constant yearly sales in the order of 100 engines, the **Whirlwind** is now producing the establishment of an engine line either for transportation of passengers, small night travel or mail carrying. The **Whirlwind** engine plane which is required for service for the **Fokker** and **Wright** are over 1000 engines now. The additional order will maintain will increase the volume of business for these lines. After they have been in operation for a considerable length of time they will be required to attend to the engine in over 1000 engines. Then again, the individual user, who desires to employ a plane like a yacht, are coming into the market. Some users have been able to get the class of motor and others are way to come. When it is considered that, with the modern cabin high speed airplane plane, any city in New England is only two hours from Boston, the advantages of high speed are vividly brought out.

London-Paris-Rome-Athens Airline Planned

Plans for an airline connecting London, Paris, Marseille, Rome, Athens, and Athens, are being completed. The line is being operated by the **Air-Union** and **Aero-Nord** companies of France, according to reports made to the Department of Commerce. Following an experiment made by airplane in Athens early in November, officers of the two companies announced that the line London-Paris-Marseille will be placed in operation May 1, 1934, with airplanes to Rome a few months later and to Athens in 1937.



The first Lightship

A small light airplane, built by J. P. Ford of San Antonio, with the collaboration of O. J. Dwyer of Midland Park and G. W. Jones of Brown, Texas. The plane was originally designed for a motor cycle engine but, owing to the unavailability of this class of power plant, it was built with a four-cylinder engine. The plane is very smooth in flight and its simplicity is obvious.

Germany to Open Air to Foreign Lines?

It is reported that, as a consequence of the Locarno pact, French and German air experts are now meeting in Paris and working out an agreement on the acceptance of air and shipping lines. It is said that a number of lines are being planned, including all last January, and a number of lines are being planned. It is probable the whole question of control over Germany's air traffic will be taken up at its next meeting by the League of Nations and that the League of Nations will be asked to take over the task of seeing that the rules laid down in the Versailles treaty are observed.

C. L. Lawrence to Address European Engineers

Upon the invitation of the **Royal Aeronautical Society** of Great Britain, Charles L. Lawrence, president of the **Wright Aeronautical Corporation**, will leave for Europe on the steamship **Yokohama** on Jan. 25, to deliver before that body and the **Institution of Automobile Engineers**, a lecture upon the subject, "American Aircraft Engine Development." The lecture will be given on Feb. 4, in the theater of the **Royal Society of Arts** in London.

Later, Mr. Lawrence will go to France, where he has been invited to speak before the French airplane builders, by the **Union Industrielle**, who was in this country at the time of the National Air Races last fall and whose entry in those races was the **Merrie Eugene Buhlert** Triplane. Mr. Lawrence will also be in London for the **British Aeronautical Society** on Feb. 4, in the theater of the **Royal Society of Arts** in London.

Mr. Lawrence was a pioneer in this field and is largely responsible for the present day development of this type of engine. The first in America to achieve more than 100 hp in a single engine in heavy planes, directly in line with the policy in Europe of equipping large passenger-carrying planes with large light engines to assure greater dependability. Mr. Lawrence is already well acquainted with European aviation engineers, as shown his graduation from Yale, he studied the three years in the **Royal Air Force** in Paris.

The Canadian Vickers Varuna Flying Boat

A Seaplane Designed Specifically for Aerial Forest Patrol and Fire Fighting.

THE "VARUNA" flying boat has been designed to a specification prepared by the **Royal Canadian Air Force**, for a flying boat for use in connection with the suppression of forest fires, its design being to transport men and fire fighting equipment to fires previously located by the regular airplane fire patrol.

As it is absolutely essential that the machine shall be able to get on time to the scene of the fire as possible, it is necessary that it shall be able to get on and out of a comparatively small lake, surrounded, in many cases, by hills. Low landing speed, a quick get-off and a high initial rate of climb, are, therefore, most important features in a design for this purpose.

Wings in Seven Sections

The machine is a twin engine flying boat, the general constructional features of which are interesting.

The machine is, in reality, a two bay biplane, although the main wing structure also serves the purpose of support for the V formation of struts being arranged for the support. There is a very wide center section, thus, the entire biplane is supported by the main wing structure on each side of the hull, wing struts being supported from the hull to take the lower wing, while the upper center section, is supported at the middle by an inverted V formation. The entire wing structure, therefore, is made up of seven parts, namely, the four outer wing panels, the two lower wing struts and the top wing center struts.

All major section struts, including the outer bracing, are of fused steel tube, while the outer wing struts are of spaced wood. Both the top section and the lower wing struts are constructed around steel tubes, the outer wing panels being fused on solid square metal spars, with ribs of lattice spars, and fabric covering.

Interchangeable Wings

Reinforced aluminum are fitted on both upper and lower wings and these wings can each be interchanged in reverse themselves. In the wing bracing, streamline ribs are used extensively while internal bracing with angled spars is employed.

The hull is of the semi-float round top type, constructed around frames of laminated ash wood. The covering sheet is of 3/16" cedar planking, arranged longitudinally,

and thus is three covered with two layers of canvas. The hull bottom, below the skin is formed of an inner skin of thin plywood work, set at 45 degrees, with a layer of masonry, and finally, an outer skin formed of rubber plating, laid longitudinally in the case of the upper covering of the hull.

A cockpit is arranged directly in the line of the hull, and fitted for an observer and equipped to take a camera for aerial photography. The pilot's cockpit is directly behind the forward cockpit and is fitted with two seats, arranged side by side and equipped with dual controls. Behind this is a third cockpit also having two and accommodating space for the change of fire fighting equipment and an auxiliary position should it be considered necessary, for any particular flight to carry work. There is a fourth cockpit, further back still in the hull, which also has accommodation for two and may be employed for further storage of equipment. It is interesting to note that all seats are designed so that occupants may wear parachutes. Furthermore, the hull is constructed with four water-tight bulkheads arranged between the cockpits, which assist for further safety in operation.

The tail consists of the usual form of conventional tail plane built half way up a single vertical fin and balanced radially, the elevator assembly being divided. The tail plane may be adjusted by means of a simple lever in the pilot's cockpit, while all tail loads are induced by means of a spring inside the fin.

The Control Mechanism

The controls in the pilot's cockpit, as previously stated, are arranged in duplicate. Elevators and ailerons are controlled by means of a column and wheel, while the rudder is controlled by means of the rudder bar of the conventional type. The auxiliary control mechanism may readily be thrown out of gear and the column axis, in fact, be swung to one side to allow movement to rudder's control.

By means of wires arranged over large steel pulleys, the wing lock mechanism is actuated within the wings and hull, except in the latter case when, aft, it becomes necessary to bring the wing outside of the fuselage in the case of the hull, as in the pilot's cockpit in the arrangement, always subject to which can not be available, whereby the rudder bar position in relation to the pilot's seat may be varied without any adjustments becoming necessary in the rudder control wires.

Lost, but by no means lost, may be modified the power



The Canadian Vickers Varuna flying boat taking off. The plane is equipped with two Wright Whirlwind radial engines.

What Pilots Think About Air Legislation

Federal Legislation

I am in favor of licensing pilots and allowing only those so licensed to carry passengers. There have been my share of instances of incompetent pilots taking up passengers and it ought to be stopped.

Part of my business is instructing, and after I turn a new license, I try to impress him with the fact that he is by no means a finished pilot and should put in a number of hours of solo flying before attempting to take up any passengers. Most of them see the point, but I have had others go right out with a total loss of fear or five hours and take up passengers. I believe the public ought to be instructed against taking such chances.

I am operating Standard with Hupac, Liberty E and GX engines. The last is the instruction work and the others for economy-quiet and short night-seeing "trips." I think the short hops are the most profitable.

I believe Federal regulations will be the best; no universal law to work under, instead of forty-eight or so very strict. Also, the same regulations that are to apply in the operation of an air line should not be applied to the small operator who does not fly his flying school on his own field and in complete right of his base. This is a mutually different proposition.

W. W. Morris,
Morton Grove, Ill.

Too Soon to Legislate

I think that commercial flying should be left alone for at least three more years.

Licensing pilots and airplane inspection will, I believe, be so complicated that it will put most of the Gypsy fleet and small field operators out of business. What if it did so without the people to fly? If the Gypsy fleet and the small operator, of course.

Licensing pilots will not prevent accidents. Sixty-six per cent of all the crashes have been due to pilot error.

I operate an aviation field here. I have a Cessna, a Hupac, Jolly and a Blue-Standard. I train a few students, take people on short flights or long cross-country flights, do photograph work and do some very good business.

I have been flying steadily since I first learned to fly in September, 1912. I have done about 1200 hours, most of this being Gypsy flying all over the United States and Old Mexico.

J. Warner Stone,
Delaware, Ohio

Far State Control

I am highly in favor of State control which could be worked out by the same law that the automobile is handled. As to a licensed pilot being a better pilot than a pilot who holds no license, this is all wrong. I have personally taught people to fly, and, in time, twelve to fifteen hours, had them able to go through the required tests. That did not make them A-1 pilots, although they were able to fly the tests as required. On the other hand I have seen pilots who held a license and who have had a considerable number of hours in the air, but could not make a landing on all three points, or use their hands in an emergency, as well as some beginners that had no business and less than fifty hours in flying time.

At the present time I do not know of any particular branch of the flying business that is very profitable, unless it is private and passenger work. At present, I am flying a Jolly with the GX job, but in the past 12 years I have flown all kinds from the old pusher on through.

C. E. Wilson,
LaPorte, Ind.

Flying Safe Without Legislation

I do not think that because a few careless pilots have had wrecks that there is reason to say that they make flying unsafe. There were some wrecks after the War, when the pilots came right from the flying service, then there are now by those who are being graduated from the aviation schools. How about the workings of the first State planes—not Ford—in the South? The best pilot will go wrong once in a while. I had a regular army officer tell me that he had "crashed out" thirty-three airplanes. What do you think about that?

We need flying fields more than anything else. Give the unaccounted industry fields and it will grow.

Finally, even if there is some bill passed by Congress, I doubt if it will help any. Let them keep out of civilian aviation.

Carl Williamson,
Orion, Iowa

Farm Legislation

I have always had a horror of any aircraft legislation, because I love the air and I would sooner be dead than to be banished from it. The reason I feel that I would not be permitted to fly is because my right hand is crippled and I know that the first thing the government would require is a very severe physical examination. I know two pilots who are very badly crippled yet they can easily a lot of physically sound pilots, especially in high places. However, I would like to see a law to stop civil flying.

As to making laws to make flying safe, that has already been tried by the Army and I really and truly believe that Army pilots have far more sense than the commercial fliers, proportionately. One reason is that the majority of "accidents" don't affect to be a chance because their old flying is short all they are. So they are not as much of a pilot but the fact and they like them and the commercial fliers, proportionately. One reason is that the majority of "accidents" don't affect to be a chance because their old flying is short all they are. So they are not as much of a pilot but the fact and they like them and the commercial fliers, proportionately.

I taught myself to fly in 1916 on a single surface Curtiss pusher which I still have. By the law will permit I am going to use her this coming season and fly her for exhibition purposes. I make my flying during seasons. During the summer months and rebuilding wooden Jennies, and Cessnas during the winter. I use Jennies mostly because that is what all I can afford to own. I have never had a real serious accident or injured anyone, including myself.

Ear Doernum,
Frankfort, Ind.

Law Necessary in Interests of Flying

I have simply flown for pleasure, originally using my ship to fly back and forth from Indianapolis to Grand Rapids, Mich. Used the VRT as this week. Flew the Little Standard and took this summer from Chicago, straight across Lake Michigan, to Marquette.

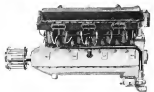
I think that every pilot, or every person who flies a ship, should be a member of the N.A.A. and have a pilot's license before he is permitted to fly. One of the greatest dangers to aviation in this country is that anyone can buy an old pusher ship and immediately begin to take up innocent passengers. The so-called pilot knows little, if anything, about flying and will lose all the confidence of his ship, which is probably only or nine years old and never had any inspection within the eight or nine years. This regulation, it seems to me, should be Federal, state or airplane owners so much territory in quickly that it is generally no time until one or another ship has passed over different state lines.

Joseph C. Duggan,
Indianapolis, Ind.

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ASK THE MAN WHO OWNS ONE

AIRPORTS AND AIRWAYS

Chicago, Ill. News

By TERRY VANCE

Luther K. Bell, traffic manager for the National Air Transport, Inc., is credited with having done positive work with Chambers of Commerce since the Chicago-Boston line was made, the contract for which the N.A.T. was awarded by the government last fall. Leading fields and hangars in many parts along the line are said to have been provided for the "Carrier Pigeons" that will carry the N.A.T. commercial loads, beginning in April.

Mr. Bell is said to have invited "certain" representatives from commercial clubs along the Chicago-Boston-to-Cleveland-Milwaukee or road route, for which the government asked bids, and which the N.A.T. intends to get.

Milton P. Rogers, spokesman of the Municipal Aircraft Plant of America, is recognizing for his junior visitors to be ready to help all citizens of every opportunity, wherever possible. "While and sometimes have been exceedingly kind to our boys," he said, "if we are recognized, we shall do so. We want every boy in America to seek places to help our army."

Wilton faced inquiries for two new pilots are reported by Otto Kline of the Black Airplane Company. Last week, when it was said, Howard Macy, who added after three and a half hours instruction, took his "license," with J. W. Lench in the first seat, on a flight to Birchwood, Wis., where

Pilot Henry Davis. The radiator froze and they had to land fifteen times between Chicago and Rockford. Both had several hours of work with other being turned out by E. S. Heath, and to know that these two students made the last trip all right, unless as first that their instruction was right. It was 10 degrees below zero when they flew, and in some places the snow was two feet deep. Mr. Kline reports that State instruction continues at 40 kinds of winter weather, and the students come from as far as New York State and from Idaho on the West. The past year was the best so far, and an even better year in 1925 is hoped for.

Johnnie Heston, veteran hangar chief for the Aero Club of Illinois, says they are "Towns" at Alhambra Field, with no flying, and no airplanes in the air for nearly a month. H. C. "Pop" Keller has his newly designed three-passenger and pilot airplane flying, near the center hangar at Alhambra Field. A fast tank in the lower wing is one of the features of the machine. Charles Schumann, president of the A.C.I., the last one of his friends either expected or asked to the possibility of his flying with Pilot Billy Brock in the "D 17" airplane, now stop from New York to Chicago. They will probably never leave in advance that trip and information may not be out only when the trip is completed satisfactorily.

Stanley Wallace, with a shop at Irving Park Blvd. and Milwaukee Avenue and a field at Alhambra Avenue and First Street, reports that he is making long runs of four-mile wings for "Standard" airplanes—wings entirely interchangeable.

Murphy, N. J.

Murphy Field is located a little over four miles N.W. of Paterson. It is on the Hightstown Turnpike and about one mile from Paterson at frequent intervals. It takes a "Wile" over half an hour to get to from Paterson to New York by train. The field is owned by Anthony Murphy, and is over a thousand feet high, and has a run of about four thousand feet in the other direction. The approach on these sides are good, but on the side of the Turnpike there are telephone poles and wires. There is a hangar which can accommodate several planes. There is also a flying room on the Turnpike side, which is open in summer and there are sleeping quarters as well. Oil and gasoline can be obtained and all pilots are welcome to the use of the field.

Mr. Murphy, with whom are associated Mr. Walter Ganser of Hightstown and Arthur Benschel of Pleasant Lake, N. J., has been flying from the field for a number of years and has never had a serious accident. The flying is done with two Cessna, fitted with O.K. engines. During the winter a new plane is being built up from a 1918 fuselage. A U.S.A. 27 wing will be used and a 250 horsepower will be installed. The plane will have seats for three passengers in addition to the pilot.

The work of the Murphy company consists of passenger carrying, advertising, instruction, etc. Some two thousand passengers were carried last summer and direct instruction received instruction. Several Army and Navy planes, and the field during the summer, due to its proximity to the Wright Aeronautical Co. The Murphy Flying Service caters a courteous attention in all visiting pilots.

Airplanes Scatter Dust Over Peaches

Efficient use of the airplane in the "dusting" of Georgia peach orchards, after the manner of dusting cotton with an oil-soluble insecticide, was recently discussed by Oliver J. Knapp, in charge of a United States laboratory at Fort

Valley, Ga., in an address before the American Association of Economic Entomologists.

"As a result of work at Tullahoma, Tenn.," said Mr. Knapp, "airplane cotton dusting was made to handle the peach fruit in a satisfactory manner by changing the position of the hopper and by setting down the outlet valve in order to reduce the fall of dust. Tests showed that the better ingredients of the dust were fairly evenly distributed to all portions of the dust cloud as it left the airplane."

"About 1800 acres of peach orchards were commercially dusted from airplanes in Georgia in 1923, and under existing conditions the quality of fruit from these orchards equaled that from the traditional machine-dusted orchards. The machine flew from 16 to 25 feet above the trees at a speed of about 40 m.p.h., dusting the orchards at a rate of about 5000 trees an hour."

Uniontown, Pa.

By Lyle K. S. S. S.

Development of Burgess Field into one of the most important in the United States is rapidly going forward and it is the hope of those in charge that by the first spring flying season, the field will be so rearranged to accommodate any and every ship that lands here.

Of particular advantage to the local field will be the establishment of the movement meteorological field here. The local station will be one of five that will be established by the Air Service in the vicinity of the Allegheny mountains, considered one of the most dangerous regions of the Model Airway. The new station will be established, in addition to the known local plane for it was being located in Washington and the next two months should, it seems, see the station established.

Aviation interest in aviation locally is increasing, with the result that many former pilots and Air Service men are looking forward to a few years of events at the local field. As a result of this increased interest, Louis S. P. Shiford, A.S. Sec. J. S. Brown, A.S. Sec. and J. S. Benschel, Chief

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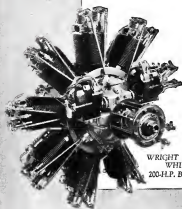


RECENT aeronautical activities point to a rapid extension of commercial aviation during 1926.

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